

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

ORDER NO. 91-134

SITE CLEANUP REQUIREMENTS FOR:

**BORDEN PACKAGING AND INDUSTRIAL PRODUCTS
41100 BOYCE ROAD
FREMONT, ALAMEDA COUNTY**

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board) finds that:

1. FACILITY DESCRIPTION. Borden Packaging and Industrial Products (hereinafter called the Discharger) operates a manufacturing facility at 41100 Boyce Road, Fremont, Alameda County (hereinafter referred to as the site) (Figure 1). The 30 acre site is bounded by Boyce Road to the southwest, a County flood control channel to the southeast, Stevenson Business Park to the northeast and Celotex Corporation to the northwest.
2. SITE HISTORY. The discharger began operations at the Fremont facility in 1960. Since that time the facility has manufactured formaldehyde, phenol-formaldehyde resins, and urea-formaldehyde resins. The resins are supplied primarily to the forest products industry for the manufacture of plywood and particle board. A complete line of water based, solvent based and hot melt adhesives were manufactured at the facility from 1965 until 1989. The adhesives primarily were used for packaging and for the assembly of wooden articles. Between 1964 and 1982 an ink manufacturing facility operated on the site as an independent entity.

Chemicals associated with the various manufacturing processes included volatile organic compounds and petroleum products that have contaminated the groundwater in the shallow zone underlying the site. Poor chemical handling practices, surface spills, leaking underground tanks, and subsurface product pipelines have been the primary contributors to groundwater contamination.

3. OCCURRENCE OF GROUNDWATER. Regionally, the site is within the Niles Subarea groundwater basin. The Niles alluvial fan or "cone" is the predominate physiographic feature of the basin. The Niles Subarea extends southward and westward under San Francisco Bay and consists of a series of flat-lying aquifers separated by clay aquitards. The top of the upper aquifer, the Newark Aquifer, occurs about 55 feet below land surface at the site. Water levels, measured in onsite Newark Aquifer wells, are approximately 11 feet below land surface. The Newark Aquifer underlying the site is potential drinking water as defined by criteria of the "Sources of Drinking Water" policy adopted by the RWQCB in March 15, 1989.

The local geology underlying the Newark Aquifer consists of stream deposits, generally less than 15 feet in thickness, interbedded with basin deposits. The stream deposits generally consist of fine sand, silt and silty clay while the basin deposits consist of plastic, organic-rich clay and silty clay. Shallow groundwater ranges between 5 and 16 feet below land surface. The direction of groundwater flow typically is toward the north.

4. SOIL AND GROUNDWATER INVESTIGATIONS. Initial groundwater monitoring at the site was targeted at detecting potential releases from waste impoundments. Borden began monitoring shallow groundwater quality in 1977 as part of Waste Discharge Requirements specified in Order 77-51. Three monitoring wells were constructed around a waste water pond located at the north edge of the site. Use of this impoundment was discontinued in 1982. In 1986, additional wells were installed to monitor three smaller sludge impoundments. Results indicated that the shallow groundwater was polluted with phenols and formaldehyde above State Action Levels and 1,1-DCA, toluene, and naphthalene below State Action Levels. Order 87-03 was subsequently adopted with ongoing monitoring requirements and a closure schedule for the remaining waste impoundments.

Groundwater contamination associated with underground storage tanks was first documented in 1983 during the closure of the ink manufacturing facility. Groundwater grab samples from the UST excavation contained up to 20 ppm toluene. The excavation was dewatered on a "regular basis" for over a year ; follow-up sampling apparently did not contain any solvents or petroleum products. An acetone product loss in 1987 triggered installation of monitoring wells in another UST area; significant groundwater contamination was present in the area. The discharger has since removed all but one storage tank, which was closed in place.

Ensuing field investigations directed by the RWQCB and the Alameda County Water District (ACWD) revealed groundwater contamination across the facility. The Discharger has identified seven individual source areas, designated as Areas A through G on Figure 2. Chemicals detected in groundwater include TCE, 1,2-DCE (cis and trans), 1,1-DCE, 1,1-DCA, 1,1,1-TCA, MEK, diesel, acetone, methanol, phenol, and formaldehyde. Maximum groundwater concentrations measured in monitoring wells include: 1.2 ppm benzene, 33 ppm 1,1-DCE, 3.7 ppm TCE, 62 ppm methanol, 960 ppm TCA, and 2,700 ppm MEK.

The Discharger initiated a "Groundwater Cleanup Program" (GCP) in mid-1988. Since that time investigations have been conducted surrounding underground product lines and storage tanks in cooperation with the RWQCB and ACWD. The Discharger has submitted four reports summarizing the progress of the GCP. Two groundwater extraction sumps have been installed in Area A (ES-1 and ES-2) . Sump ES-2 is inactive. Extraction from ES-1 began in 1990, but was limited to the amount of saline water that could be used for manufacturing purposes. During 1990 about 40,000 gallons were extracted. In January 1991 the Discharger received approval from the BAAQMD to use existing water cooling towers to airstrip the extracted groundwater. Between January and May 1991, about 16,500 gallons were extracted from sump ES-1.

5. COMPLIANCE WITH ORDER 87-03. Order 87-03 set a framework for closure of existing waste impoundments, implementation of an alternative waste management system, establishment of water quality protection standards, and monitoring of groundwater. The Discharger completed all the specified tasks of the Order and no longer operates surface impoundments. The Discharger consistently complied with the Water Quality Protection Standards prescribed the Order during the eighteen quarters of monitoring since 1987. This monitoring is ongoing, but the Discharger wants to modify and consolidate this program with ongoing monitoring associated with their GCP.
6. SALINITY BARRIER PROJECT. ACWD is in the process of implementing a Salinity Barrier Project (SBP) which will withdraw saline water from the Newark Aquifer. The SBP will be a line of extraction wells which will serve two functions: first, under pumping operation, the wells will create a hydraulic trough along the bay to prevent the intrusion of saline water into potable aquifers during dry periods when groundwater levels are below sea level; second, the SBP will cause freshwater from the eastern recharge zones of the Newark Aquifer to migrate towards the SBP wells, enabling domestic and industrial use of groundwater to resume in portions of the Newark Aquifer east of the SBP. The Site is east of the SBP wells as currently designed.

The proposed location of SBP wells is just over one-half mile west of the site. In the absence of actions to prevent it, pollutants could migrate toward the SBP extraction wells, possibly requiring cleanup of the groundwater prior to the planned surface discharge. Proposed surface discharges from the SBP extraction wells would discharge to the South San Francisco Bay by means of existing natural or manmade drainage channel. It is the intent of the Board to adopt Site Cleanup Orders for those sites affecting the ability of the ACWD to implement the SBP. Irrespective of actions associated with ACWD's SBP, pollutants may migrate from the shallow zone to surface waters, and/or to the Newark Aquifer.
7. STATE BOARD RESOLUTION 68-16. On October 28, 1968, the State Board adopted Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality Waters in California." This policy calls for maintaining the existing high quality of State waters unless it is demonstrated that any change would be consistent with the maximum public benefit and not unreasonably affect beneficial uses. The original release of waste and continuing discharge to the groundwater below this site was in violation of this policy; therefore, the groundwater quality needs to be restored to its original quality to the extent reasonable.
8. STATE BOARD RESOLUTION 88-63. On March 30, 1989, the Regional Water Quality Control Board incorporated the State Board Policy of "Sources of Drinking Water" into this Regional Board's Basin Plan. The Policy provides for a Municipal and Domestic Supply Designation for all waters of the State with some exceptions. Two relevant exceptions are 1) the total dissolved solids in the groundwater exceed 3,000 mg/l, and 2) the water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day. The RWQCB finds that neither of these exemptions apply to the Newark Aquifer. Therefore the Newark Aquifer is considered a source of Drinking Water under State Board Resolution 88-63.

9. SCOPE OF THIS ORDER. This Order contains tasks for completion of groundwater characterization at the site; revision of the Self Monitoring Program from Order 87-03, implementation and evaluation of preferred remedial actions for soil and groundwater pollution and implementation of final cleanup actions. The tasks and schedules set forth were developed in cooperation with the Discharger. The tasks are necessary to alleviate the threat to surface and groundwater posed by the migration of pollutants and to provide a substantive technical basis for designing and evaluating the effectiveness of final remediation.
10. BASIN PLAN. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) dated December 1986. The Basin Plan contains water quality objectives and beneficial uses for San Francisco Bay and contiguous surface and groundwaters.
11. BENEFICIAL USES - GROUNDWATER. The existing and/or potential beneficial uses of groundwater in the vicinity of the Site include:
 - a. Municipal and domestic water supply
 - b. Industrial process water supply
 - c. Industrial service water supply
 - d. Agricultural water supply
12. BENEFICIAL USES - SURFACE WATER. The existing and/or potential beneficial uses of surface waters in the vicinity of the Site include:
 - a. Contact and non-contact water recreation
 - b. Wildlife habitat
 - c. Warm and cold fresh water habitat
 - d. Fish migration and spawning
13. CEQA. This action is an Order to enforce the laws and regulations administered by the Board. This action is categorically exempt from the provisions of the CEQA pursuant to Section 15321 of the Resources Agency Guidelines.
14. PUBLIC HEARING. The Board has notified the Discharger and interested agencies and persons of its intent under California Water Code Section 13304 to prescribe Site Cleanup Requirements for the discharge and has provided them with the opportunity for a public hearing and an opportunity to submit their written views and recommendations.

The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that Borden Packaging and Industrial Products shall cleanup and abate the effects described in the above findings as follows:

A. PROHIBITIONS

1. DISCHARGE OF WASTE: The discharge of wastes or hazardous materials in a manner which will significantly degrade water quality or adversely affect the beneficial uses of the waters of the State is prohibited.
2. POLLUTION MIGRATION THROUGH THE SUBSURFACE: Significant migration of pollutants through subsurface transport to waters of the State is prohibited.
3. POLLUTION MIGRATION CAUSED BY INVESTIGATIONS: Activities associated with the subsurface investigation and cleanup, that will cause significant adverse migration of pollutants, are prohibited.

B. SPECIFICATIONS

1. NUISANCE CLAUSE: The treatment or disposal of soil or groundwater containing pollutants shall not create a nuisance as defined in Section 13050 (m) of the California Water Code.
2. REMEDIAL ACTIVITIES: The Discharger shall conduct monitoring activities reasonably necessary to define the current local hydrogeologic conditions, and the lateral and vertical extent of soil and groundwater pollution. Should monitoring results show evidence of plume migration, additional plume characterization may be required.
3. POTENTIAL CONDUITS: Any wells identified as potential conduits for the migration of pollutants shall be properly abandoned, to the extent legally possible. A detailed workplan shall be submitted for review and approval which describes the proposed methods of abandonment for each well identified.
4. CLEANUP GOALS - SOILS: The cleanup goals for source area soils shall be background concentrations for metals and petroleum products and no greater than 1 ppm for volatile organic compounds. Alternate soil cleanup goals may be proposed based on site specific data. If higher levels of pollutants to be left in soils are proposed, the Dischargers must demonstrate that cleanup to the aforementioned level is infeasible, that the alternate levels will not threaten the quality of waters of the State, and that human health and the environment are protected. Final cleanup goals for source-area soils must be acceptable to the Executive Officer. If any chemicals are left in the soil, follow-up groundwater monitoring will be required.
5. CLEANUP GOALS - GROUNDWATER: Final cleanup goals for polluted groundwater, including sources of drinking water, onsite and offsite, shall be background water quality if feasible, in accordance with the State Water Resources Control Board's Resolution No. 68-16, "Statement of Policy with Respect to

Maintaining High Quality of Waters in California". If background water quality goals are not achievable, as determined by data submitted in annual reports, alternative goals may be proposed and shall be approved by the Board. Alternate goals may include applicable standards, such as Maximum Contaminant Levels, and shall be based on an evaluation of the cost, effectiveness and a risk assessment to determine the affects on human health and the environment. These goals shall reduce the mobility, toxicity, and volume of pollutants.

6. RECLAMATION: If groundwater extraction and treatment is considered as an alternative, the feasibility of water reuse, reinjection, and disposal to the sanitary sewer must be evaluated. Based on the Regional Board Resolution 88-160, the Discharger shall optimize, with a goal of 100%, the reclamation or reuse of groundwater extracted as a result of cleanup activities. The Discharger shall not be found in violation of this Order if documented factors beyond the Discharger's control prevent the Discharger from attaining this goal, provided the Discharger has made a good faith effort to attain this goal. If reuse or reinjection is part of a proposed alternative, an application for Waste Discharge Requirements may be required. If discharge to waters of the State is part of a proposed alternative, an NPDES permit application must be completed and submitted, and must include the evaluation of the feasibility of water reuse, reinjection, and disposal to the sanitary sewer.

C. PROVISIONS

1. The Discharger shall comply with all Prohibitions and Specification above, in accordance with the following time schedule and tasks:

COMPLETION DATE/TASK:

- a. **COMPLETION DATE: 45 days after adoption of this Order.**

TASK: REVISION OF SELF MONITORING PROGRAM. Submit a report, acceptable to the Executive Officer, which integrates the Self Monitoring Program of Order 87-03 and monitoring for the "Groundwater Cleanup Program." The revised monitoring program shall include, but need not be limited to, a summary of the existing programs, proposed changes, and justification for the proposed changes. The existing and proposed sample wells, frequency of water level and water quality sampling, and identification of methods chosen for sample analysis shall be tabulated.

- b. **COMPLETION DATE: October 30, 1991**

TASK: EVALUATION OF POTENTIAL CONDUITS. Submit a technical report acceptable to the Executive Officer which contains the results of a potential conduit study. Any potential conduit should be included which would allow pollutants to migrate from the ground surface to groundwater, and/or between water bearing zones. These include but are not limited to existing monitoring wells, extraction wells, and sumps as well as historical drainage or water wells.

- c. **COMPLETION DATE: NOVEMBER 15, 1991**

TASK: WORKPLAN FOR COMPLETION OF SOIL AND SHALLOW ZONE GROUNDWATER POLLUTION CHARACTERIZATION. Submit a work plan acceptable to the Executive Officer which describes hydrogeologic investigations that will determine the lateral and vertical extent of soil and groundwater pollution at the site. This plan shall identify and propose investigation for all past and present areas of chemical handling, transmission, storage, or transfer. The plan should identify areas where off-site investigations may be necessary to define the full extent of contamination. A complete schedule for completing the investigation phases shall be included.

- d. **COMPLETION DATE: January 30, 1992**

TASK: NEWARK AQUIFER POLLUTION CHARACTERIZATION AND RECOMMENDED REMEDIAL ACTIONS. Submit a technical report acceptable to the Executive Officer which includes the results of investigations to determine if the Newark Aquifer at the Discharger's facility is contaminated. This technical report shall contain an evaluation of all information the Discharger has collected regarding any existing Newark Aquifer groundwater pollution at or adjacent to the Site. The results of an evaluation of potential for vertical migration from the shallow zone contaminants to the Newark Aquifer shall be included. Preferential pathways including depositional geologic features as well as conduits defined in Provision C.1.b shall be part of the vertical migration evaluation. Recommendations and schedules for further investigation, including additional borings and/or wells, or remedial action shall be included.

- e. **COMPLETION DATE: June 30, 1992**

TASK: CLOSURE OF POTENTIAL CONDUITS. Submit a technical report acceptable to the Executive Officer which documents the closing of any potential conduits as identified in Provision C.1.b. This technical report should include documentation of the appropriate permits, types and quantities of materials used to seal each well, and/or the method of well destruction, as well as a description/location of the water bearing zones which were sealed.

- f. **COMPLETION DATE: July 31, 1992**

TASK: GROUNDWATER AND SOIL POLLUTION CHARACTERIZATION AND REMEDIATION FEASIBILITY STUDY. Submit a technical report acceptable to the Executive Officer which defines the extent of pollution and evaluates the feasibility of alternate remedial actions. The report shall summarize the results of the work proposed in Provision C.1.c. The report shall include a detailed screening of technical alternatives for soil and groundwater pollution remediation. The study shall include an assessment of 1) potential effectiveness,

2) technical feasibility, 3) projected costs of remedial action. The study shall include rationales for both the alternatives selected for screening and a detailed explanation of the alternative selected. The report shall recommend the preferred soil and groundwater cleanup alternative and provide a time schedule for implementation. The study shall contain recommendations for implementation, and a plan and schedule for implementation of the preferred remedial actions.

- g. **COMPLETION DATE: 90 days after implementation of the preferred remedial actions approved by the Executive Officer.**

TASK: IMPLEMENTATION OF PREFERRED REMEDIAL ALTERNATIVES. Submit a technical report acceptable to the Executive Officer documenting the implementation of the preferred groundwater and soil remedial alternative and compliance with the schedules approved in Tasks C.1.d and C.1.f. The documentation includes but is not limited to engineering designs, equipment procurement, construction and installation, start up, and permitting (e.g. building permits, conditional use permits, air permits, discharge permits, hazardous waste variances, etc.).

- h. **COMPLETION DATE: July 31, 1993**

TASK: FINAL PERFORMANCE EVALUATION.

Submit a technical report acceptable to the Executive Officer which evaluates the effectiveness of the implemented soil and groundwater remediation. If the remediation is not performing effectively, evaluate system enhancements. The report will either document acceptable remediation performance or identify and discuss final groundwater cleanup alternatives, their feasibility and their costs and benefits in relation to beneficial use protection. Any changes to the preferred cleanup alternative and a time schedule for implementation of the cleanup measures shall be recommended. The report shall also specify a network of monitoring wells used to document the effectiveness of remediation.

- i. **COMPLETION DATE: 180 days after the Executive Officer approves the Final Performance Evaluation.**

TASK: IMPLEMENTATION OF REMEDIAL ALTERNATIVE ENHANCEMENTS. Submit a technical report acceptable to the Executive Officer documenting completion of any changes to the preferred remediation as selected in Provision C.2.h. The implementation includes but is not limited to engineering designs, equipment procurement, construction and installation, start up, and permitting (e.g. building permits, conditional use permits, air permits, discharge permits, hazardous waste variances, etc.).

2. On a quarterly basis, the Discharger shall submit a technical report two months following the end of each quarter, commencing with a report for the quarter ending September 30, 1991 and due November 30, 1991. These quarterly technical reports shall include, but need not be limited to:

- a. a summary of work completed since the previous quarterly report and work to be completed by the time of the next quarterly report
 - b. appropriately scaled and detailed base maps showing the locations of all monitoring wells, extraction wells, and existing structures and source areas.
 - c. well construction data, groundwater levels, and chemical analyses (groundwater and soil), tabulated with the results from the preceding three quarters of data and accompanied by a written evaluation of trends in the data
 - d. a summary of any quality control/quality assurance problems in the field or laboratory
 - e. updated groundwater surface contour maps for the shallow zone and the Newark Aquifer (if three or more onsite data points become available).
 - f. isoconcentration maps for key pollutants in the shallow zone and the Newark Aquifer (if three or more data points become available).
 - g. updated geologic cross-sections if new information has changed interpretations.
 - h. copies of the original water sample field data sheets showing all field measurements
3. On an annual basis, for the previous calendar year, by the end of the second month following the calendar year, the Discharger shall submit an annual technical report acceptable to the Executive Officer which shall document and evaluate the progress of remedial actions. This report shall contain, but not be limited to, information on the number of gallons of groundwater pumped and treated, where the waters were discharged, changes and trends in water quality, problems encountered in the past year with implemented and/or proposed solutions, and projected cleanup anticipated for the coming year. The first of these is due February 28, 1992 and may be submitted with the February 28, 1992 quarterly report.
 4. As specified in Section 13273(b) of the California Water Code, all hydrogeologic reports, documents, plans, and specifications, shall be certified by one of the following: a registered geologist, registered pursuant to Section 7850 of the Business and Professions Code; a certified engineering geologist, certified pursuant to Section 7842 of the Business and Professions Code; or a civil engineer registered pursuant to Section 6762 of the Business and Professions Code, who has at least five years experience in groundwater hydrology.
 5. If the Discharger is delayed, interrupted or prevented from meeting one or more of the completion dates specified in this Order, the Discharger shall promptly notify the Executive Officer and the Board may consider revision to this Order.

6. All samples shall be analyzed by State certified laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control records for Board review.
7. The Discharger shall maintain in good working order, and operate, as efficiently as reasonably possible, any facility or control system installed to achieve compliance with the requirements of this Order.
8. Copies of all correspondence, reports, and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order, shall be provided to the following agencies:
 - a. Alameda County Water District
 - b. City of Fremont
 - c. Alameda County Health Care Services Agency
 - d. State Department of Health Services/TSCD
9. The Discharger shall permit the Board or its authorized representative, in accordance with Section 13267(c) of the California Water Code:
 - a. Entry upon premises in which any pollution sources exist, or may potentially exist, or in which any required records are kept, which are relevant to this Order.
 - b. Access to copy any records required to be kept under the terms and conditions of this Order.
 - c. Inspection of any monitoring equipment or methodology implemented in response to this Order.
 - d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the Discharger.
10. The Discharger shall file a report on any changes in Site occupancy and ownership associated with the facility described by the Discharger.
11. If any hazardous substance is discharged in or on any water of the State, or discharged and deposited where it is, or probably will be, discharged in or on any waters of the State, the Discharger shall report such discharge to this Regional Board, at (415) 464-1255 on weekdays during office hours from 8 a.m. to 5 p.m., and to the Office of Emergency Services at (800) 852-7550 during non-business hours. A written report shall be filed with the Regional Board within five (5) working days and shall contain information relative to the nature of waste or pollutant, quantity involved, duration of the incident, cause of spill, Spill Prevention, Control and Countermeasures Plan (SPCC) in effect, if any, estimated size of affected area, nature of effects, corrective measures that have been taken or planned, and a schedule of these activities, and person/agencies notified.

12. Board Order 87-03 is no longer applicable and is hereby rescinded.
13. The Board will review this Order periodically and revise the requirements as necessary to effectuate the intent of this Order in a prompt and reasonable manner.

I, Steven R. Ritchie, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on September 18, 1991.



Steven R. Ritchie
Executive Officer